Freeze shafts in a salt deposit, Gorleben shafts Nos. 1 and 2

Scope of Work

Design and construction of exploratory shafts to investigate the potential as a final disposal for nuclear waste using the ground freezing technique with extremely low temperatures

Client
Deutsche Gesellschaft für den Bau und Betrieb von Endlagern für Abfallstoffe mbH (DBE)

Location
Gorleben, Germany

Geology
Water-bearing and instable down to a depth of 250m, a salt dome is located below this to a depth of 3500m

Duration
1986 - 1999

Technical Data

- Inner diameter: 7,5 m
- Depth: 933 m / 843 m
- Drilling work and explosives to sink the shafts, shaft milling machine deployed in the freeze shaft part
- Waterproof lining in the freeze shaft part, no lining in salt dome, only protection against stone fall with bolts and mesh
- Drivage of the sub-surface infrastructure rooms

Special Features

- Tunnelling in the freeze shaft part occasionally using shaft milling machines
- Wide-ranging injections in the uppermost salt layers (135,000 metres drilled)
- Refrigeration capacity of 3.7 MW at -40° C brine temperature

DEILMANN-HANIEL

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